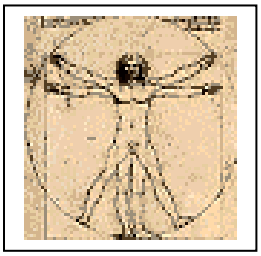

Health Care Optimization

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Chronic Obstructive Pulmonary Disease (COPD) in Consumers with Mental Illness

The purpose of this guide is to provide case managers and physicians with information to facilitate treatment of individuals with serious and persistent mental illness who also have co-occurring substance abuse disorder. The guide presents an overview of current research and clinical recommendations for consumers with COPD.

Introduction: Chronic Obstructive Pulmonary Disease (or COPD) is a lung disease associated with obstruction of the flow of air in and out of the lungs making it difficult for the consumer to breathe. This obstruction, unlike asthma, is not reversible. The airflow limitation is usually progressive in COPD, which is the fourth leading cause of death in this country. The major risk factor for developing COPD is smoking and as such, consumers with mental illness are particularly at risk for developing COPD and its associated complications since several studies have demonstrated high rates of cigarette smoking in consumers with mental illness.

In this guide the following topics will be addressed: (1) the definition of COPD, (2) risk factors for developing COPD, (3) screening for COPD, (4) treatment of COPD, and (5) special considerations for the schizophrenic consumer with COPD.

(1) The definition of COPD

The airways in the lungs resemble the branches of an upside down tree with balloon-like sacks at the end of the branches that expand when a person breathes in and relax when a person breathes out. In a normal person, these airways are open and the balloon-like sacs are very elastic. In consumers with COPD the air sacs lose their shape and become less elastic (more floppy) and the walls of some of these sacs become destroyed. In addition, the walls in the airways leading to these sacs also become swollen (inflamed) and cells that line these airways start to produce much more mucous. As a result of the inflammation surrounding these airways and the excess mucous production that occurs in COPD, the airways become clogged and it becomes more and more difficult to move air in and out of the lungs.

The common symptoms of COPD are cough, sputum production, shortness of breath on exertion, and as COPD progresses shortness of breath at rest. The severity of symptoms depends on how much of the lung has been destroyed. If consumers continue to smoke, the destruction of the lungs will occur more rapidly than those that quit smoking. There can also be other symptoms associated with COPD not related to the lungs. These include muscle weakness and significant weight loss. Although the exact cause of weight loss in COPD is not known, progressive weight loss is associated with shortened survival in consumers with COPD.

<u>Point to Case Manager 1:</u> Although cough and sputum production are classic signs of COPD, not every one that has these symptoms will have COPD and not every one with COPD will have these symptoms. These symptoms suggest the possibility of COPD but more definitive tests are required to make the diagnosis.

There are two forms of COPD: emphysema and chronic bronchitis. Emphysema predominately affects the balloon-like sacs at the end of the airways. In emphysema, the walls of the air sacs are destroyed leading to a few large air sacs. As a result, less of a surface area is available for exchanging oxygen and carbon dioxide from the blood causing the person to become severely short of breath. Chronic bronchitis predominately affects the airways (which resemble the branches of an upside down tree). These airways become inflamed and filled with mucous. As a result, the consumer with chronic bronchitis has a great deal of sputum production, cough and shortness of breath.

<u>Point to Case Manager 2:</u> Although there are two different forms of COPD (emphysema and chronic bronchitis) most consumers with COPD will have a combination of both forms.

(2) Risk factors for developing COPD

The most important risk factor for developing COPD is cigarette smoking. In one study, 12.5 percent of current smokers and 9.4 percent of previous smokers had obstructive lung disease. This becomes an important point to consider when dealing with the mentally ill consumer because of the high rates of smoking seen in this population. It should also be noted that a small percentage of individuals who never smoked may also develop COPD. Other known risk factors for developing COPD include: air pollution, occupational exposure to dust, low socio-economic status, white race, males and genetic predisposition.

<u>Point to Case Manager 3:</u> Any mentally ill consumer who has a history of smoking should be screened for COPD.

(3) Screening for COPD

Up to 60 percent of consumers with COPD may not be aware of the fact that they actually have COPD (especially with mild disease). As a result, many consumers often are under-diagnosed and under-treated. This is especially true with consumers who overall have poor medical care and follow-up. Because of the impact of COPD on quality of life and the presence of preventive measures that may improve symptoms and quality of life, it is recommended to screen consumers at high risk.

Most people who develop COPD are 40 years and older. The following people should be screened for COPD:

- Current or former smokers
- Those who spent many years in contact with air pollution
- Family history of COPD
- Those with frequent and severe lung infections during childhood
- Consumers who report cough and shortness of breath on exertion beyond three weeks in duration.

There is no blood test that can diagnose COPD. The best way to diagnose this is by conducting a breathing test known as spirometry. This test is easy and painless to perform and is used to provide a measure of how well the lungs work. The consumer is instructed to breathe hard into a machine and upon breathing out, the spirometer measures how much air the consumer's lungs can hold and how fast the consumer can blow air out of his/her lungs after taking a deep breath. The spirometer will provide several measurements. The most important measurement to diagnose COPD is the FEV1/FVC ratio. COPD is generally defined by a FEV1/FVC ratio of less than 70 percent.

Point to Case Manager 4: ***A spirometer is a machine used to measure lung function and what is used to make the diagnosis of COPD. One of the measurements obtained by a spirometer is the FEV1/FVC ratio. A ratio less than 70 percent is usually seen in consumers with COPD***.

There are different stages of COPD. These include:

- Stage 0: At Risk (for developing COPD): Breathing test is normal. Mild symptoms are present that include a cough and sputum production.

- Stage I: Mild COPD: Breathing test shows mild airflow limitation but the consumer may not be aware of it. Symptoms may include a chronic cough and sputum production.

- Stage II: Moderate COPD: Breathing test shows a worsening airflow limitation and symptoms have increased. Shortness of breath usually develops with brisk activity.

- Stage III: Severe COPD: Breathing test shows severe airflow limitation. A person is short of breath after just a little activity.

A chest x-ray is not accurate enough to diagnose COPD. In addition, it does not in any way reflect the severity of disease. A chest x-ray may be useful to rule out other lung diseases that may either resemble COPD in terms of presenting symptoms or that may exacerbate COPD symptoms. For example, one of the most common causes of a COPD exacerbation (and for hospital admissions) is an upper respiratory infection.

Point to Case Manager 5: ***A chest x- ray is not used to diagnose COPD, only to rule out other lung diseases that may resemble COPD or that may exacerbate COPD.***

(4) Treatment of COPD

The goals of treatment for COPD include:

- To decrease shortness of breath
- To increase exercise performance
- To improve quality of life
- To slow the progression of COPD

Treatments for COPD may consist of a combination of any or all of the following: (1) smoking cessation, (2) medications in the form of inhalers, (3) preventive measures, (4) pulmonary rehabilitation and (5) supplemental oxygen therapy.

Medications: The two most common types of inhalers used in COPD are bronchodilators and inhaled steroids. Bronchodilators work by relaxing the muscles surrounding the airways, which serve to open up the airways. Inhaled steroids work by decreasing the inflammation surrounding the airways.

Point to Case Manager 6: ***One of the adverse effects associated with bronchodilators is that in certain consumers, it can cause their heart rate to speed up and to feel jittery. These symptoms may be particularly prominent in consumers with mental illness.***

Preventive Measures: Every consumer with COPD should be provided with the influenza vaccine every year and the pneumonia vaccine every five years.

Pulmonary Rehabilitation: Severe shortness of breath often leads to a sedentary lifestyle and deconditioning. This may be particularly prominent in consumers with mental illness who may have other factors (such as negative symptoms and adverse effects of medications) that may also contribute to a sedentary lifestyle. The goals of pulmonary rehabilitation include: consumer education, nutritional assessment, training of muscles used for breathing, psychosocial support and exercise.

Oxygen therapy: This is the only thing that has shown to prolong life in consumers with COPD. Studies have shown that long-term oxygen therapy: improves survival, quality of life and exercise tolerance in consumers with COPD.

Point to Case Manager 7: ***Not every consumer with COPD is prescribed supplemental oxygen. This treatment is usually reserved for very severe disease. Consumers with COPD using supplemental oxygen need to be warned about the dangers of smoking while using the supplemental oxygen.***

Infections with bacteria and viruses often can cause an exacerbation of COPD. Consumers may find it more difficult to breathe, may have increased chest tightness, increased cough and sputum production. In addition, consumers may have fevers, chills and sweats. If a consumer reports having these symptoms, they should immediately be referred to their medical provider. The medical provider may then prescribe antibiotics, steroids to take by mouth for a short term and in some cases may need to admit the consumer to the hospital.

(5) Special considerations for the mentally ill consumer with COPD

The three most important considerations regarding COPD in consumers with mental illness include: the large prevalence of smoking, the effects that some of the medications used to treat COPD may have on the symptoms of mental illness, and the effect that low oxygen levels in consumers with COPD will have on mental illness.

Smoking and Mental Illness: One community-based study has demonstrated that 45 percent of all cigarette consumption occurs in individuals with mental illness. Studies specifically involving mentally ill consumers have demonstrated smoking rates from 32 percent to as high as 92 percent. Motivation to quit smoking is often low in the mentally ill population,

thus efforts should be made to increase their awareness about the dangers associated with smoking, especially in consumers who already suffer from COPD. In addition, if a consumer is reluctant to quit smoking completely, efforts should be concentrated at reducing the number of cigarettes smoked, or switching brands to cigarettes with lower concentrations of nicotine.

COPD Medications and Mental Illness: Certain inhalers used in COPD that work to open up the breathing airways (known as bronchodilators) have a variety of side effects that although may be tolerable to the general population, can be overwhelming to consumers with mental illness. These include an increased heart rate, feeling of nervousness or jitteriness, and tremulousness. Such symptoms may further exacerbate any co-morbid anxiety that exists with these consumers.

Point to Case Manager 8: ***Any mentally ill consumer with COPD who just gets started on a bronchodilator inhaler should be monitored for worsening anxiety symptoms.***

Another medication sometimes used in COPD exacerbations to reduce the swelling in the airways very quickly is an oral (by mouth) steroid. Such steroids can sometimes cause an exacerbation of psychotic symptoms, or new psychotic symptoms. This also needs to be carefully monitored in consumers with mental illness.

Finally, as mentioned in the earlier section, oxygen is often used in consumers with severe COPD to improve their breathing and quality of life. This needs to be used with extreme caution in consumers with mental illness who still smoke because oxygen is extremely flammable.

Effect of Low Oxygen Levels in Consumers with Mental illness: Consumers with COPD tend to have very low oxygen levels in their blood, which progressively worsens as the disease progresses. In general, low blood oxygen levels often can interfere with a person's ability to think clearly and concentrate. This may be particularly problematic in consumers with mental illness.

Point to Case Manager 9: ***If a consumer with COPD is having increasing difficulty concentrating or thinking clearly, a medical professional should evaluate them to determine if the oxygen level in their blood has decreased due to some underlying cause exacerbating the COPD.***

The role of the case manager in working with consumers who have COPD:

- Determine how much a consumer smokes and any other lung irritants they may be exposed to on a daily basis.
- Counsel them on the dangers of cigarette smoking and on how to avoid other lung irritants.
- Refer them to a smoking cessation program if they are ready, or counsel them on decreasing the number of cigarettes they smoke (or switching to brands with lower nicotine contents).
- Ask them if they have had a flu vaccine this year or a pneumonia vaccine over the past 5 years.

- Inform them to contact you or their medical provider if they experience an exacerbation of COPD symptoms: shortness of breath, cough, sputum production, fever, chest tightness.
- Ask them to inform you if they experience any unusual symptoms from any of the treatments they may be receiving for their COPD.

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Point to Case Manager 2: **Although there are two different forms of COPD (emphysema and chronic bronchitis) most consumers with COPD will have a combination of both forms.**

Point to Case Manager 3: **Any consumer who has a history of smoking should be screened for COPD.**

Point to Case Manager 4: **A spirometer is a machine used to measure lung function and what is used to make the diagnosis of COPD. One of the measurements obtained by a spirometer is the FEV1/FVC ratio. A ratio less than 70 percent is usually seen in individuals with COPD**.

Point to Case Manager 5: A chest x-ray is not used to diagnose COPD, only to rule out other lung diseases that may resemble COPD or that may exacerbate COPD.

Point to Case Manager 6: **One of the adverse effects associated with bronchodilators is that in certain consumers, it can cause their heart rate to speed up and to feel jittery. These symptoms may be particularly prominent in consumers with mental illness.**

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